Docket No.:

P2001,0216

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applic. No.

10/673,705

Confirmation No.:

2451

Inventor

Annalisa Cappellani et al.

Filed

September 26, 2003

TC/A.U.

2829

Examiner

Scott B. Geyer

DECLARATION TO ACCOMPANY PETITION UNDER 37 C.F.R. 1.8(b) and 1.10(c)

I, Laurence A. Greenberg, hereby declare that:

- ❖ to the best of my knowledge and belief, the mailing of September 26, 2003 was sent by Express Mail to the Patent and Trademark Office on that date;
- ❖ to the best of my knowledge and belief, the mailing of October 23, 2003, was sent by first class mail to the Patent and Trademark Office on that date;
- ❖ I have reviewed the pertinent pages of the outgoing mail log for September 26, 2003, and October 23, 2003, and the pages show that the papers as listed in the accompanying amendment were indeed mailed on the dates indicated above;
- the mailing of October 23, 2003 was originally signed by Mark Weichselbaum who is no longer with the firm.

LAURENCE A. GREENBERG REG. NO. 29,308

Laurence A. Greenberg

Date:

LERNER AND GREENBERG, P.A.

PATENT ATTORNEYS AND ATTORNEYS AT LAW

2445 Hollywood Boulevard Hollywood, Florida 33020 Tel: (954) 925-1100 Fax: (954) 925-1101

Laurence A. Greenberg (FL Bar) Werner H. Stemer (FL Bar) Ralph E. Locher (FL IL. MO Bars) Gregory L. Mayback (FL Bar)

PATENTUSA®
www.patentusa.com
patents@patentusa.com

Manfred Beck (US & German Pat, Agent)
Mark P. Weichselbaum (TN Bar)
Markus Nolff (FL Bar)
Loren Donald Pearson (FL Bar)
Otto S. Kauder (Reg. Pat, Agent)
Denise A. Lettau (DC Bar)
Yonghong Chen (Chinese Pat, Agent)
F. Donald Paris (NY, NJ, DC Bars)
Alfred K. Dassler (Reg. Pat, Agent)

Kyle H. Flindt (UT Bar)

Mailing Address: Post Office Box 2480 Hollywood, FL 33022-2480 New York Satellite Office 153 E 57th St., Suite 15G New York, NY 10022

Of Counsel: Herbert L. Lerner (NY Bar)

"Express Mail" mailing label number: <u>EV309760700US</u> Date of Deposit September 26, 2003

I hereby certify that this paper or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to the Commissioner for Patents, Alexandria, VA 22313-1450.

Docket No.: P2001,0216

MICHAEL BURNS

Date: September 26, 2003

Mail Stop Patent Application Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450

Sir:

Enclosed herewith are the necessary papers for filing the following application for Letters Patent:

Applicant

ANNALISA CAPPELLANI ET AL.

Title

METHOD FOR FABRICATING A MOSFET HAVING A VERY

SMALL CHANNEL LENGTH

1 sheet of drawings.

The payment in the amount of \$750.00 covering the filing fee. PCT Cover Sheet WO 02/078058 A2

Information Disclosure Statement and 15 References.

This application is being filed without a signed oath or declaration under the provisions of 37 CFR 1.53(f). Applicants await notification of the date by which the oath or declaration and the surcharge are due, pursuant to this rule.

The Patent and Trademark Office is hereby given authority to charge Deposit Account No. 12-1099 of Lerner and Greenberg, P.A. for any fees due or deficiencies of payments made for any purpose during the pendency of the above-identified application.

Respectfully submitted

LAURENCE A. GREENBERG REG. NO. 29,308

For Applicants

ŁAG:kf

,
DOCKETYPING PROOF 0246
DCCKET NO. P2001,0216 Mailed September 26, 2003
APPLIC. NO Express MailEV3097.60700US.
The stamp of the Patent Office hereon may be considered the date on which
Dall Indicated below were received
Applic pgs QO Rule 53b New Contin Div CIP Rule 53c Prov. Rule 53d CPA RCE Design Design Declaration Mailing Certif. Priority Claim Cert. Prior. Doc(s) PCT Cover Sheet WO Q. 2/078058
☐ CIPpgs ☐ Design ☑ . J. Dwgs ☐ Declaration ☒ Mailing Certif.
Priority Claim Cert. Prior. Doc(s) PCT Cover Sheet WO 0.2/018058
Amena pgs Li Fiel. Amena pgs Li Letter
☐ Response pgs ☐ 37CFR1.116 ☐ Not. of Appeal
☐ Brief pgs ☐ Appndx pgs ☐ I.D.S. + 15. Refs.
Assoc Pwr of Atty Credit Card \$ 750,00
Pet. for Ext Mo. Pet Check \$
Issue Fee Assignment PTOL 14.4.9. 22386 U.S. PTO
Dert. Trans. Dert. of Corr. File rec. corr 10/673705
TITE TO COLON REFERENCE

LERNER AND GREENBERG, P.A. P.O. Box 2480 Hollywood, FL 33022-2480

u.s. Adamas

BEST AVAILABLE COP

Talladlillaadidaldaldlidlidliadidliadidl



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant

ANNALISA CAPPELLANI ET AL.

Filed

CONCURRENTLY HEREWITH

Title

METHOD FOR FABRICATING A MOSFET HAVING A VERY

SMALL CHANNEL LENGTH

INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450

Sir:

In accordance with 37 C.F.R. 1.98 copies of the following patents and/or publications are submitted herewith:

U.S. Patent No. 6,091,120 (Yeom et al.), dated July 18, 2000;

U.S. Patent No. 5,089,863 (Satoh et al.), dated February 18, 1992;

U.S. Patent No. 5,384,479 (Taniguchi), dated January 24, 1995, and corresponding German Patent DE 42 34 528 C2 (Taniguchi), dated April, 15, 1993;

German Published Non-Prosecuted Patent Application DE 42 34 777 A1 (König et al.), dated April 21, 1994, and English abstract thereof;

French Patent Application FR 2 791 177 A1 (Thomas et al.), dated September 22, 2000, and English abstract thereof;

Patent Abstracts of Japan 63044768 (Shinichi), dated February 25, 1988;

European Patent Application EP 0 740 334 A2 (Eckstein et al.), dated October 30, 1996;

European Patent Application EP 0 328 350 A2 (Nakamura et al.), dated August 16, 1989;

PCT WO 02/41383 A1 (Furukawa et al.), dated May 23, 2002;

Widmann, D. et al.: "Technologie hochintegrierter Schaltungen" [Technology of High-Density Integrated Circuits], Springer Verlag, 2nd Edition, pp. 201-203; Ghani, T. et al.: "100nm Gate Length High Performance/Low Power CMOS Transistor Structure", IEEE, 1999, pp. 415-418;

Lasky, J. B. et al.: "Comparison of Transformation to Low-Resistivity Phase and Agglomeration of TiSi2 and CoSi2", IEEE Transactions on Electron Devices, Vol. 38, No. 2, February 1991, pp. 262-269;

Hisamoto, D. et al.: "A Low-Resistance Self-Aligned T-Shaped Gate for High-Performance Sub-0.1-µm CMOS", IEEE Transactions on Electron Devices, Vol. 44, No. 6, June 1997, pp. 951-956;

Kasai, K. et al.: "W/WNx/Poly-Si Gate Technology for Future High Speed Deep Submicron CMOS LSIs", IEEE, 1994, pp. 497-500;

International Search Report, dated April 14, 2003.

If no translation of pertinent portions of any foreign language patents or publications mentioned above is included with the aforementioned copies of those applications, patents and/or publications, it is because no existing translation is readily available to the applicant.

Respectfully submitted

For Applicants

Date: September 26, 2003

Lerner and Greenberg, P.A. Post Office Box 2480

Hollywood, FL 33022-2480

Tel: (954) 925-1100 Fax: (954) 925-1101

/nt/kf

LAURENCE A. GREENBERG REG. NO. 29.308

Addit. Info.			PCT, 02/078916A2+A3, Fee Cald		1449, ISR, 02/078200A2	1449, ISR, 02/078058 A2	1449, Pet. To accept col. Photos	PCT, Fee Calc. Sheet, Transm. L	85B, Pub. Fee	85B, Pub. Fee, 1595	Pub. Fee, 1595	Fee,	1595														1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	37 CFR, Invention Discl.			
ijpp\			ζT,	1449	449,	449,	449,	ζT,	35B, I	15B, I		85B, I	, 828		1449							Faxed		6				Decl.			
Снеск	_								ω	ω	ω	ω.	ω			İ	T														1
Credit Card			×	×	×	×	×	×	×	X	X	×	×		_			_	-	-	_	_			×	_		×	×	4	-
3nuomA ₫										\$40.00 X		\$40.00 X																			
3nuomA €	3		\$1,080.00	\$750.00	\$750.00	\$750.00	\$505.00	\$2,170.00	\$1,600.00	\$1,600.00	\$1,600.00	\$1,600.00	\$1,300.00							-					\$110.00			\$410.00	\$860.00		
1833			24/3											24700		_ >	< >	<u> </u>	l×	×	×	(G. C.)6									
Response Trademark Application					m														(L)		.	2					÷	ന			
BORE SELECTION OF THE S	(page	7.0			*																								×	1 3	
Priority Document				×	×									×													0.533860			\	(
yenrottA to sewon (.esA)									Ž		¥				. >	< ∴										×		×			-
PCT Cover Sheet Petition for Ext.			<u>ا</u>				King.					3								754				V :				2			5
Maintenance Fee	-		Δ				1-47					20.58	i kens						T			Siec.	3				1			<u> </u>	1
Letter Draftsman			X		300		14.)					1										7								3	£ 3.3
Letter																>	< ×	×	×	×	×										
Inf. Drawings (No.) Issue Fees									×	×	×	×	×				' 	T											36	Т	No. one
IDS (No. of Refs.)			က	ω	9	12	ထ								X				1						2						
Formal Drawings (No.)			4		48			15		·																					
Fil. Rept. Correct.																							<u>ca</u>	4						3	1000
Divisonal I			×	×	×	×	×	×										27.75													38
Declaration			×		Ì		×						500			I													Ì		-
Claim for Priority	- 3		34.3	×	×			- 2						×	72	T	1	T	T			03.5				8				×	4
Cert. Correction	-2,1									3.5	118							2 37				Ø 15					74.				3
Brief																															Total S
JnamngizzA	Ī							V.	*	×	2	×	×			4						1	i.								Š
Application (No. of Pgs.)			9	14	47	20	36											N/ ac													
leaddA																							0		0	. 1					A COMPANY
Amend (No. of Pgs.) Amend (116 (No. of Pgs.)				77										٠, ٢	-				V.			×		6	10	6				ာ ဝ	
The state of the s						100										1	-		ъ				- President							-	
INVENTOR					Ě.	ani			اے		ē			şek		Schamberger			Dickenscheid			Ę		Ę		Grassmann	Barchmann	_			
Į.			orenzi	Scherer	Muschallik	Cappellan	evine	evine	Bitterich	Lippert	Alsmeyer	Wörz	Brück	Hanuschek	Weige	2 6	Jartmann	Walter	šen	Kaiser	kaiser	Weinrich	Knabe	Reichert	Richter	assn	튑	Sommer	Kersch	Coller	!
		<u> </u>	9	တ္တ	₹	<u>.</u>	اله	9	<u></u>	음	¥	ĕ	ត	품 등	<u> </u>	3 0	3 5	×	Ö	조	ka	౾	줃	æ	泛	Ö	Ba	S :	황	<u> ၂</u>	4
Ŏ.	26-Sep-03				-																	إ					_				
ET I	-Se			797	526	516		إخ	ļ	82	644	78		287	770	342	356	366	361	341	344	861L		903		3423	1-200		8	-725	
DOCKET NO	78	3	302	P2002,0797	P2001,0226	P2001,0216	2	F-8351 PCT	31	SBV-08685	GR98P8644	2000P1278	E-41047	P2002,0587	M&N-11-471	P2002,0370	MUH-12656	MUH-12666	P2000,0361	P2000,0341	P2000,0344	GR97P1861D	34	GR97P1903	345	GR00P23423	MAS-FIN-203	372	L&L-10078	MAS-FIN-235 A-8215	<u>:</u>
٥			A-3902	P20	02 S	2	F-8351	F-83	A-3231	SB	GR _S	<u> </u>	E-41	PZO	200	200		N N	P20	P20	P20	GRS	A-2834	GR ₂	A-2845	SR C	MAS	A-2972	בן ופג	MAS-F	

GR99P2859	ZTG99P16409 S			A-3444	54	6	07,		91			ZTP98P4050D	MUH-12619	GR99P1679 [F-8164	L&L-10223	W&B-INF1957 E	MAS-FIN-409	1	W&B-INF1964			J&R-0854 F	23-Oct-03	DOCKET NO.
Kopetzky	Strolz	Stroiz	Verbeck	Becker	Reithofer	Cappellani	\akoschke	Schrems	Beitel	Stolze	Mueller	∢aiser	Ruckerbauer	Deboy	Vanmoor	Krüger	Beer	Hagen	Däche	√aiser	Beer	Kupnik	Reithofer		INVENTOR
						***		177	9	12:	10												19:		Amend (No. of Pgs.) (1) Amend 1.116 (No. of Pgs.) Appeal Application (No. of Pgs.)
		×	×		i.								1						4	4					Assignment Brief Cert. Correction
															X	X	×××	××	×	××	100	×			CIP Claim for Priority Declaration Divisonal Express
	2			_	2	2	7_	2	l l	1711		×	×												Fill. Rcpt. Correct. Formal Drawings (No.) IDS (No. of Refs.) Inf. Drawings (No.)
		×	×	×											×		×	×	×	×	X	×	i v		Issue Fees Letter Letter Draftsman Maintenance Fee
1				×	×	×	×									×		×		×	X	×			PCT Cover Sheet Petition for Ext. (Ass.) Power of Attorney Priority Document
× 78	į	Æ.			<u> </u>		e de la companya de l			i i	Ž.	28	16	د					L	ė.	J.	G.	1 12		RCE Response 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2.
\$880.00		,630.00	\$1,630.00														\$130.00	\$130.00	\$130.00	\$130.00	\$130.00	\$130.00			\$ Amount
×		\$40.00 X	\$40.00 X														×	×	×	×	×	×			\$ Amount Credit Card Check
		Publication Fee	Publication Fee		European Search Report	Taiwanese Office action		cert. Translation																_	Addit. Info.
					7																	-			

7 P E	May SE						Sh	eet 1	of 3				
JUL PATENT & TR	FORM PTC	MENT C	9 (SUBSTITUTE OF COMMERCE MARK OFFICE)	Attomey Docke Appl. No.:	et No.: P2	001,021	16					
	INFOR	RMAT EMEN	ION DISCLOSU NT BY APPLICA CFR 1.98(b))		Applicant: ANN AL.	IALISA C	APPELL	-ANI	ΕT				
					Filing Date: September 26, 2003 Group Art Unit:								
	EXAMINER INITIALS		PATENT NO.	DATE	PATENTEE	CLASS	SUB CLASS		ING				
Ĺ		Α	6,091,120	7/18/00	Yeom et al.								
		В	5,089,863	2/18/92	Satoh et al.								
		С	5,384,479	1/24/95	Taniguchi								
		D											
		E											
		F											
		G											
. [Н											
		1											
		1	FOREIG	SN PATE	NT DOCUMENT		CLID						
-			DOCUMENT NO.	DATE	COUNTRY	CLASS	SUB CLASS	TRA YES					
-		J	42 34 528 C2	4/15/93	Germany								
_		K	42 34 777 A1	4/21/94	Germany								
		L	2 791 177 A1	9/22/00	France								
		М	63044768	2/25/88	Japan								
_		N	0 740 334 A2	10/30/96	Europe								
	OTHER	DOC	CUMENTS (Inclu	ding Auth	or, Title, Date, F	Pertinent I	Pages, e	etc.)					
			High-Density Integ	rated Circu	ogie hochintegrierte lits], Springer Verla	g, 2 nd Editio	n, pp. 20	1-203					
			Ghani, T. et al.: "10 Transistor Structur	00nm Gate e", IEEE, 1	Length High Perfor 999, pp. 415-418	mance/Lov	v Power C	MOS					
[1	EXAMINER				DATE CONSIDI	ERED							

-

2 W	OFFICE O. 2017						St	neet :	2 of 3
TRAD	U.S. DEPARTA	MENT C	9 (SUBSTITUTE OF COMMERCE EMARK OFFICE	<u> </u>	Attorney Dock Appl. No.:	et No.: P	2001,02	16	
	INFOR	RMAT EMEI	TION DISCLOSU NT BY APPLICA CFR 1.98(b))		Applicant: ANI AL.	NALISA C	APPELI	LANI	ET
					Filing Date: Se Group Art Unit	eptember :	26, 2003	3	
			•					·	
	EXAMINER INITIALS		PATENT NO.	DATE	PATENTEE	CLASS	SUB CLASS		ING ATE
		Α			77772	OLAGO	CLASS	U	416
		В							
		С				,			
		D							
		E	×						
L		F							
L		G							
L	·	Н							
L		<u> </u>							
			FOREIG	ON PATE	NT DOCUMENT	Г			
			DOCUMENT NO.	DATE	COUNTRY	CLASS	SUB	TRA	NSL.
Γ		J	0 328 350 A2	8/16/89	Europe	CLASS	CLASS	YES	NO
١		К	. 02/41383 A1	5/23/02	WIPO				
L									
		L							
		L							
	OTHER	L M N	CUMENTS (Inclu	ding Auth	or, Title, Date, F	Pertinent	Pages, e	etc.)	
	OTHER	L M N	Lasky, J. B. et al.: and Agglomeration Devices, Vol. 38, N	"Comparison of TiSi ₂ ar	on of Transformation and CoSi ₂ ", IEEE Transformation	on to Low-R ansactions 269	esistivity F on Electro	Phase on	
	OTHER	L M N	Lasky, J. B. et al.: and Agglomeration Devices, Vol. 38, N Hisamoto, D. et al.	"Comparison of TiSi₂ ar No. 2, Febru .: "A Low-R -0.1-µm CM	on of Transformation of CoSi ₂ ", IEEE Tra uary 1991, pp. 262- esistance Self-Align OS", IEEE Transac	on to Low-R ansactions 269	esistivity For Electro	Phase	h-

JOHN CO. O. S. C.		•				St	neet 3	3 of				
E M PTC)-144	9 (SUBSTITUTE)	Attorney Docke	et No.: P2	2001,02	16					
U.S. DEPART	MENT (OF COMMERCE		Appl. No.:								
PATENT AND	TRADE	EMARK OFFICE										
	EME	TION DISCLOSU NT BY APPLICA! CFR 1.98(b))		Applicant: ANNALISA CAPPELLANI ET AL.								
				Filing Date: Se	ptember :	26, 2003	3					
	- ***			Group Art Unit:		·						
EXAMINER	· · · ·											
INITIALS		PATENT NO.	DATE	PATENTEE	CLASS	SUB CLASS		ING				
	A											
	В											
	С											
	D		ļ <u> </u>		ļ		<u> </u>					
	E						ļ					
	F						ļ					
	G H						-					
-					<u> </u>							
	<u> </u>						L					
		FOREIG	N PATE	NT DOCUMENT	•							
		DOCUMENT NO.	DATE	COUNTRY	CLASS	SUB CLASS	TRAI					
	J							<u></u>				
	K											
	L_											
	М											
	N											
OTHER	DOC	CUMENTS (Includ	ding Auth	nor, Title, Date, F	Pertinent I	Pages, e	etc.)					
		Kasai, K. et al.: "W	/WNx/Poly	/-Si Gate Technolog	v for Future			een				
		Submicron CMOS	LSIs", IEE	E, 1994, pp. 497-50	0							
		J										

EUROPEAN PATENT OFFICE

Patent Abstracts of Japan

PUBLICATION NUMBER

63044768

PUBLICATION DATE

25-02-88

APPLICATION DATE

12-08-86

APPLICATION NUMBER

61188815

APPLICANT :

MITSUBISHI ELECTRIC CORP:

INVENTOR:

SATO SHINICHI;

INT.CL.

H01L 29/78

TITLE

FIELD EFFECT TRANSISTOR AND

MANUFACTURE OF THE SAME

ABSTRACT:

PURPOSE: To neutralize a negative potential by a positive voltage applied to a gate electrode even if hot electrons are trapped by an insulating film by a method wherein a gate electrode of a T-shape cross-section is formed on a required part of a substrate and the insulating film is buried between the part of the gate electrode close to the substrate surface and the substrate surface beneath the electrode.

CONSTITUTION: After a gate insulating film 2 is formed on a silicon substrate 1, the material for a gate electrode 3 is applied. The gate electrode material is a double-layer film composed of, for instance, a polycrystalline silicon layer 3a and a high melting point metal layer 3b. By applying plasma etching to the electrode materials 3a and 3b with optimized conditions such as gas composition, gas pressure and electric power, a gate electrode 3 of a T-shape cross-section which has a brim part is formed. Then low concentration diffused layers 4 are provided closer to the gate electrode than high concentration diffused layers 6 and those two type diffused layers form continuous double-layer structures. With this constitution, a highly reliable transistor in which creation of hot carriers is suppressed and the gm deterioration caused by the carriers trapped by the insulating film is avoided can be obtained.

COPYRIGHT: (C)1988, JPO& Japio

BEST AVAILABLE COPY